

p627 1-18, 23, 24; p626 46; p624 26; p623 18

1. arithmetic 2. series 3. pascal's Δ

4. 27, 22, 17, 12 5. $a_{27} = 2 + 26(6) = 158$

6. -4, ..., 16 7. $S_{31} = \frac{31}{2}(7+127)$

$16 = -4 + (4)d$ $S_{31} = 2077$

$20 = 4d$

$5 = d$

$(1, 6, 11)$

9. $a_6 = 5(-2)^5 = -160$

8. $\frac{1}{3}, 1$

11. $S_4 = \frac{125(1 - \frac{2^4}{5})}{1 - \frac{2}{5}} = 203$

10. 7, ..., 189

$189 = 7r^3$

$27 = r^3$

$3 = r$

$(21, 63)$

13. $S_{\infty} = \frac{\frac{1}{3}}{1 - (-2)}$ DNE

14.

$-29 = 91 + (n-1)(-6)$

$-126 = -6n$

$21 = n$

$S_{21} = \frac{21}{2}(91-29)$

$= 651$

15. $r = -\frac{1}{2}$

$S_{\infty} = \frac{12}{1 - (-\frac{1}{2})} = 8$

16. 1, 4, 7, 10, 13

17. -3, -2, 2, 11, 27

18. -2, 10, 70

23. $a_1 = 20$

$0 = 20 + (n-1)(-3)$

$a_8 = 2$

$d = -3$

$-20 = -3n + 3$

$a_8 = 0$ 8 rows

$a_n = 0$

$-23 = -3n$
 $7\frac{2}{3} = n$

$S_7 = \frac{7}{2}(20+2) = 77$ red bricks

$$46 \quad (3r + s)^5$$

$$= (3r)^5 + 5(3r)^4(s) + 10(3r)^3(s)^2 + 10(3r)^2s^3 + 5(3r)s^4 + s^5$$

$$243r^5 + 405r^4s + 270r^3s^2 + 90r^2s^3 + 15rs^4 + s^5$$

$$26. \quad 120 = 7.5r^4$$

$$16 = r^4$$

$$\pm 2 = r$$

$$15, 30, 60$$

$$-15, 30, -60$$

$$18. \quad 106 = 4 + (n-1)6$$

$$106 = 6n - 2$$

$$108 = 6n$$

$$18 = n$$

$$\sum_{n=1}^{18} (6n-2)$$

$$S_{18} = \frac{18}{2} (4 + 106)$$

$$S_{18} = 990$$